Claims

1. Method for preparing a porous body, suitable for the production of a porous metal article, comprising the steps of providing a polymeric foam, which foam is impregnated with a slurry of metal particles, drying the impregnated foam, followed by pyrolysis in the presence of metal hydride particles.

2. Method according to claim 1, further comprising sintering of the porous body, which sintering is carried out in the presence of metal hydride particles.

3. Method for providing a porous metal coating to a metal substrate comprising the steps of providing a polymeric foam, which foam is impregnated with a slurry of metal particles, pasting the impregnated foam onto the substrate, drying the impregnated foam, followed by pyrolysis in the presence of metal hydride particles, and sintering.

4. Method according to claim 3, wherein the substrate comprises a metal selected from titanium, tantalum, titanium alloy, tantalum alloy, cobalt-chromium, stainless steel, nickel and nickel alloy, zirconium, niobium and mixtures thereof.

5. Method according to claim 4, wherein the substrate comprises titanium or a titanium alloy.

6. Method according to any of the previous claims, wherein the presence of said metal hydride particles is provided by placing metal hydride particles in the environment without contacting said impregnated foam in which said pyrolysis or said sintering is carried out.

7. Method according to any of the previous claims, wherein said metal is selected from titanium, tantalum, titanium alloy, tantalum alloy, cobalt-chromium, stainless steel, nickel and nickel alloy, zirconium, niobium and mixtures thereof.

8. Method according to claim 7, wherein said metal is titanium or a titanium alloy.

9. Method according to any of the previous claims, wherein said metal hydride is based on the same metal as said metal particles.

10. Method according to any of the previous claims, wherein said polymeric foam comprises polyurethane.

11. Method according to any of the previous claims, wherein said slurry further comprises one or more of the following additives: a binder, a defloculant, a viscosity modifying agent and/or a pH-modifying agent.

12. Method according to claim 11, wherein said slurry comprises a binder selected from PEG4000, methylcellulose and/or carboxyl methyl cellulose (CMC).

13. Method according to any of the previous claims, wherein said metal particles have a mean diameter of 5-100 μm.

14. Method according to any of the previous claims, wherein said pyrolysis is carried out at a pressure of 10^{-3} - 10^{-2} mbars.

15. Method according to any of the previous claims, wherein said sintering is carried out at a pressure of 10^{-6} - 10^{-4} mbars.

16. Method according to any of the previous claims, wherein said pyrolysis is carried out at a temperature of 150 to 550°C.

17. Method according to any of the previous claims, wherein said sintering is carried out at a temperature of 1050-1350°C.

18. Article of manufacture comprising a porous body obtainable by a method according to any of the claims 1, 2 or 4-17.

19. Article of manufacture comprising a coated substrate obtainable by a method according to any of the claims 3-17.

20. Article according to claim 18 or 19, which is a medical implant, preferably a bone replacement material or a scaffold.

21. Medical implant comprising a porous metal structure or coating with a porosity of at least 50%, having a mean pore size of at least 400 μm,

wherein the pores are interconnected, which implant has a compressive strength of at least 10 MPa, wherein the metal is selected from titanium, tantalum, titanium alloys, tantalum alloys and combinations thereof.

22. Use of a metal hydride in a sintering and/or pyrolysis process for the manufacture of porous metal articles from metal particles.